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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/899,067	07/06/2001	Young Jo Lee	K-277	3188

			EXAMINER
34610	7590	02/25/2004	D'AGOSTA, STEPHEN M

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ART UNIT	PAPER NUMBER
2683	5

DATE MAILED: 02/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____ .

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-47* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-3,7,9,15-30,32-36,38-43 and 45-47* is/are rejected.

7) ☒ Claim(s) *4-6,8,10-14,31,37 and 44* is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All   b) ☐ Some * c) ☐ None of:

       1. ☒ Certified copies of the priority documents have been received.

       2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

       3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date *3*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-21, 9, 15-20, 26-28, 41 and 46-47 rejected under 35 U.S.C. 103(a) as

being unpatentable over Blakeney II et al. US 5,640,414 and further in view of Fredrik et

al. WO99-60809 (hereafter Blakeney and Fredrik).

As per claims 1, 9, 15 and 41, Blakeney teaches a soft handoff method (title)
comprising;
Measuring a strength of a respective pilot signals from a plurality of BTS's
(abstract),
Measuring to determine if the signal strength of the received pilot signal is
higher/lower than a prescribed value (abstract)
But is silent on
allocating a first code pattern to the corresponding base station to receive a
coded signal from the corresponding BTS and/or dropping of the corresponding BTS,
Receiving the coded signal using the first code pattern from a first one of the
plurality of BTS's
Changing the first code pattern of a signal from a second one of the plurality of
BTS's to a second code pattern from the first code pattern if the code patterns of signals
from the first and second BTS's are the first code pattern when the signals from the two
BTS's are received.
Fredrik teaches coded allocation for sectorized communications (title) whereby a
mobile can roam among different code sets in a CDMA system (figure 7c) and that
allocation of codes/code sets may change over time to support handoff (abstract).
Hence first/second code patterns would be used to support the mobile as it roams which
reads on allocating/receiving/changing codes sets in the limitation above.
Since Blakeney teaches simultaneous connections to multiple BTS's (figure 1)
which may use identical code patterns and Fredrik's system teaches a concept of
changing code sets as needed, it would be possible for Blakeney to have two adjacent
sectors using the same code set which would provide means for Fredrik's system to
change one code set so that they were not identical.
With further regard to claim 9, the possibility for multiple BTS's to be in contact
with the mobile reads on "allocating different code patterns to the signals from two of the

three BTS's whose pilot signal strengths are high among the signals from the three base stations and receiving signals from the two active-state BTS's".

With further regard to claim 15, Blakeney teaches transmitting power strength messages and handoff complete messages (abstract – teaches mobile reporting signal strength measurements to the BSC and command messages regarding the handoff being transmitted as well).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Blakeney, such that multiple codes are used, to provide means for optimal communications to be supported by changing code sets if interference/environment dictates.

As per claim 2, Blakeney in view of Fredrik teaches claim 1 **but is silent on** wherein the change of the code pattern from the first to the second pattern is performed at a prescribed time to match a code pattern changing time of the second base station and a mobile terminal.

Fredrik teaches changing code sets as the user roams which reads on a "prescribed time" since both the mobile and BTS need to use the same code set at the same time for communications to be supported.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Blakeney, such that codes sets are changed at prescribed time, to provide means for both mobile and network to simultaneously change at the same time to the same code set.

As per claim 16, Blakeney in view of Fredrik teaches claim 15 above, **but is silent on** use of a swap indicator to indicate the initial code pattern needing to be changed to the second code pattern and a swap time indicator to indicate when a swap from the initial code pattern to the second code pattern will occur.

Fredrik teaches use of multiple code sets and would require coordination among the mobile and BTS(s) involved as to which patterns were being used and when (which reads on the claim).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Blakeney, such that a swap indicator is used, to provide identification of which new code set is to be used and at which time the change occurs.

As per claim 17, Blakeney in view of Fredrik teaches claim 15 above and wherein a mobile user roaming may be in contact with at least three BTS's (see figure 1) for a three way handoff.

As per claim 18, Blakeney in view of Fredrik teaches claim 15 **but is silent on** wherein communication is simultaneously maintained with the first BTS using the initial code pattern and a second code BTS using the second code pattern prior to transmitting the power strength measurement message.

Fredrik teaches use of multiple code sets (abstract and figure 7c) while Blakeney teaches transmitting power strength messages (abstract and figure 1). Neither

Blakeney nor Fredrik define conditions for when a power strength message may/may not be sent or for when a mobile may be using multiple code sets - which allows for simultaneous connections using multiple code sets before/during/after a power strength message being sent.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Blakeney, such that simultaneous communications to two BTS's is supported, to provide means for a soft handover to occur with multiple code sets.

As per claim 19, Blakeney in view of Fredrik teaches claim 18 above, and wherein communication with the second BTS is dropped when communication with the target BTS is acquired (last sentence of abstract).

As per claim 20, Blakeney in view of Fredrik teaches claim 15 above **but is silent on** code patterns determined by a turbo coder.

The examiner takes Official Notice that CDMA communications use coders such as convolutional encoders, turbo coders or other forward error correction coder that are well known in the art (eg. see Yi, US 5,978,365 abstract).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Blakeney, such that a turbo coder is used, as is known in the art of CDMA communications.

As per claims 26 and 28, Blakeney teaches a subscriber unit of a mobile communication system (see figure 1, #18) comprising:

Means for providing communication with a first base station using a first code pattern (abstract teaches CDMA which uses at least one code pattern)

Means for receiving a handoff direction message from a target base station including an initial code pattern to be used by the target (abstract teaches messages between mobile and network and figure 1 shows multiple BTS's which may use different codes)

Means for transmitting a handoff complete message to the target BTS when communication is established with the target BTS (abstract)

But is silent on Means for synchronizing a change of the initial code pattern used with the target BTS to a second code pattern at a prescribed time if the initial code pattern is the first code pattern .

Fredrik teaches use of multiple code sets which requires coordination as to which code set(s) are being used and when.

Since Blakeney teaches simultaneous connections to multiple BTS's (figure 1) which may use identical code patterns and Fredrik's system teaches a concept of changing code sets as needed, it would be possible for Blakeney to have two adjacent sectors using the same code set which would provide means for Fredrik's system to change one code set so that they were not identical.

With further regard to claim 28, Blakeney teaches a different code phase for each BTS to uniquely identify it and use of power measurement/handoff messages

(abstract) **but is silent on** use of a switching indicator/time to change code set. Fredrik teaches use of multiple codes and requires coordination between the mobile and BTS's which reads on the claim.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Blakeney, such that change from one code to another is synchronized, to provide means for the change to occur simultaneously for both mobile and network components to support continued communications.

As per claim 27, Blakeney in view of Fredrik teaches claim 26 wherein the prescribed time is included in the handoff direction message to the mobile station (abstract teaches use of handoff messages to support the handoff that is to occur) **but is silent on** the BTS changing from initial code to second code at a prescribed time.

Fredrik teaches use of multiple code sets and the ability to change from one (initial) code to a second code and requires coordination between mobile and network components as to which code will be used and when.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Blakeney, such that change from one code to another occurs at a prescribed time, to provide means for both mobile and network to change at the same time for continued RF communications.

Claims 3, 7 and 42 rejected under 35 U.S.C. 103(a) as being unpatentable over

Blakeney in view of Fredrik and further in view of Lin US 6,542,744 (hereafter Lin).

As per claims 3, 7 and 42, Blakeney in view of Fredrik teaches claim 2/6/41 above **but is silent on** wherein the code pattern changing time (and/or whether to apply the code pattern changing time) is defined in a time field added to a UHDM sent from at least one BTS to the mobile.

Lin teaches Three Handoff Direction Messages exist, with the applicable message being determined by the cellular network type or the mobile phone type. The first is an IS-95A Extended Handoff Direction Message which is defined in the publication "Mobile Station-Base Station Compatibility Standard for Dual-Mode Wideband Spread Spectrum Cellular System," document TIA/EIA/IS95-A, available from the Telecommunications Industry Association (TIA) and the Electronic Industries Association (EIA). The second message is an IS-95B General Handoff Direction Message, defined in "Mobile Station-Base Station Compatibility Standard for Dual-Mode Spread Spectrum Systems," document TIA/EIA-95-B, ANSI Publication version, December 1998. The third message is an IS-95C Universal Handoff Direction Message (commonly referred to as IS-2000), defined in "Introduction to cdma2000 Standards for Spread Spectrum Systems," document TIA/EIA/IS-2000.5-A, March 2000. (C6, L22-39).

The examiner notes that the UHDM message is widely known in the art as providing pertinent information regarding the handoff and would be used to convey the code pattern changing time and/or applying the code pattern changing time.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Blakeney, such that a UHDM is used, to provide handoff information in an industry standard message.

Claims 21-25 29-30, 33-36, 38-40, 43, 45-47 rejected under 35 U.S.C. 103(a) as being unpatentable over Blakeney in view of Fredrik and Lin and further in view of Yi US 5,978,365 (hereafter Yi).

As per claims 21, 29, 35 and 40, Blakeney teaches a handoff direction message for use in a mobile communication system (title and abstract teaches messages from mobile to network components) comprising;

A pilot PN code, to identify a target BTS (abstract teaches BTS transmitting pilot with different code phase to identify itself which reads on the limitation)

But is silent on

A puncturing pattern, to indicate a first code pattern of a bit stream transmitted by the target BTS

A switching indicator to indicate if the first code pattern of the target BTS will be switched to a second code pattern and

A switching time, to indicate when the first code pattern will be switched if the switching indicator indicates that the first code pattern will be switched.

Yi teaches use of first/second code puncturers in a CDMA system used for handoff operations (see abstract and claims 1-38).

Fredrik teaches use of multiple code sets which requires both mobile and network to understand which pattern to use and when (which reads on the limitations regarding switching indicators/time).

With further regard to claim 29, Blakeney **is silent on** a UHDM message. Lin teaches Three Handoff Direction Messages exist, with the applicable message being determined by the cellular network type or the mobile phone type. The first is an IS-95A Extended Handoff Direction Message which is defined in the publication "Mobile Station-Base Station Compatibility Standard for Dual-Mode Wideband Spread Spectrum Cellular System," document TIA/EIA/IS95-A, available from the Telecommunications Industry Association (TIA) and the Electronic Industries Association (EIA). The second message is an IS-95B General Handoff Direction Message, defined in "Mobile Station-Base Station Compatibility Standard for Dual-Mode Spread Spectrum Systems," document TIA/EIA-95-B, ANSI Publication version, December 1998. The third message is an IS-95C Universal Handoff Direction Message (commonly referred to as IS-2000), defined in "Introduction to cdma2000 Standards for Spread Spectrum Systems," document TIA/EIA/IS-2000.5-A, March 2000. (C6, L22-39).

As per claims 35 and 40, Blakeney **is silent on** an action time field (or message) for indicating an action time to change a first puncturing pattern to a second puncturing pattern for an encoder. Yi teaches use of first/second code puncturers while Fredrik teaches use of multiple code sets that must be coordinated between mobile and network and reads on the limitation.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Blakeney, such that a UHDM and action field is used to change patterns, to provide handoff information/pattern changes via an industry standard message.

As per claim 22, Blakeney in view of Yi and Fredrik teaches claim 21 **but is silent on** use of a turbo encoder in a BTS. Yi teaches use of a turbo encoder (abstract).
It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Blakeney, such that a turbo encoder is used, as is known in the art of CDMA communications.

As per claims 23-25, Blakeney in view of Yi and Fredrik teaches claims 21 and 23 and use of handoff messages (Blakeney abstract) **but is silent on** a switching indicator indicating first code pattern switched when mobile is receiving a bit stream from a current BTS and/or when mobile and BTS switch from first to second code pattern at switching time.
Fredrik teaches use of multiple code sets which requires coordination between mobile and network components in known which code sets are to be used and when, which reads on the claim limitations.
It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Blakeney, such that a switching indicator is used, to provide means for mobile and network to known which code is to be used when a switch is to occur.

As per claims 30 and 36, Blakeney in view of Fredrik, Yi and Lin teaches claim 29/35 **but is silent on** the swap action field comprises a first predetermined number of bits to define a second predetermined number of puncturing code pattern changing times, and wherein a puncturing code pattern changing time defined in time field is defined in a system time unit.
Fredrik teaches use of multiple code sets and requires coordination between mobile and network components as to which code will be used and when to change from one code to another which reads on the limitation.
It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Blakeney, such that a swap action field comprises first/second number of puncturing code changes and time, to provide means for both mobile and network to know the puncture code pattern changing time for continued RF communications.

As per claims 32 and 38, Blakeney in view of Fredrik, Yi and Lin teaches claim 29/35 **but is silent on** the second puncturing code pattern is complementary to the first puncturing code pattern.
Yi teaches use of first/second code puncturing while Fredrik teaches use of multiple code sets (which can be complimentary).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Blakeney, such that second code is complementary from first, to provide means for the two codes not to be identical.

As per claim 33, Blakeney in view of Fredrik, Yi and Lin teaches claim 29 **but is silent on** sending the action time defined in the time field of the UHDM from at least one base station.

Fredrik teaches use of multiple code sets in a sectorized communication system (abstract) and Lin teaches use of a UHDM message. Fredrik requires the mobile and network to know which code set to change to and when - which reads on the action time defined in the time field from at least one BTS.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Blakeney, such that action time is defined in the UHDM, to provide means for using an industry standard message to define when to change.

As per claims 34 and 39, Blakeney in view of Fredrik, Yi and Lin teaches claim 29/35 **but is silent on** first/second puncturing code patterns determine a type of encoder.

Yi teaches use of first/second code puncturers which reads on using multiple encoders to perform encoding for first/second puncturers.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Blakeney, such that first/second puncturing codes determine a type of encoder, to provide means for multiple encoders to be used/identified for optimal communications.

As per claims 43 and 45, Blakeney in view of Fredrik teaches claim 43 **but is silent on** the time action is expressed as a predetermined number of bits in the UHDM message and/or time information is applied based on swap information in the UHDM.

Fredrik teaches use of multiple code sets and requires coordination between mobile and network components as to which code will be used and when to change from one code to another which reads on the limitation.

Lin teaches Three Handoff Direction Messages exist, with the applicable message being determined by the cellular network type or the mobile phone type. The first is an IS-95A Extended Handoff Direction Message which is defined in the publication "Mobile Station-Base Station Compatibility Standard for Dual-Mode Wideband Spread Spectrum Cellular System," document TIA/EIA/IS95-A, available from the Telecommunications Industry Association (TIA) and the Electronic Industries Association (EIA). The second message is an IS-95B General Handoff Direction Message, defined in "Mobile Station-Base Station Compatibility Standard for Dual-Mode Spread Spectrum Systems," document TIA/EIA-95-B, ANSI Publication version, December 1998. The third message is an IS-95C Universal Handoff Direction Message (commonly referred to as IS-2000), defined in "Introduction to cdma2000 Standards for Spread Spectrum Systems," document TIA/EIA/IS-2000.5-A, March 2000. (C6, L22-39).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Blakeney, such that a UHDM message is used, to provide handover information between mobile and network via industry standard message.

As per claims 46-47, Blakeney in view of Fredrik teaches claim 41 and

Receiving a signal from a third cell and Determining a code pattern of a BTS which transmitted signal from third cell (abstract and figure 1 show receiving signal from multiple BTS's and measuring pilot)

Disregarding the signal from third cell wherein said other code pattern corresponds to the code pattern of the BTS which transmitted the signal from the third cell and/or detecting that the signal from third cell is below a predetermined value and disregarding step being performed after detection step (abstract and figure 1 teach that a signal below threshold will be disregarded/dropped).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. D'Agosta whose telephone number is 703-306-5426. The examiner can normally be reached on M-F, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Trost can be reached on 703-308-5318. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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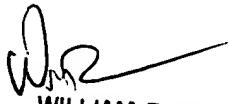
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